

Whitecroft
lighting

Lighting for Life

Improving the learning environment through
Teaching Surface Illuminance

cascade TSI

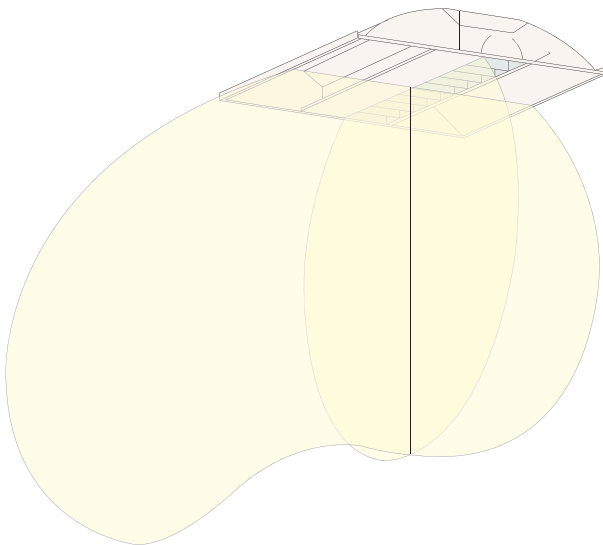
cascade TSI

Recessed fluorescent: Teaching surface illuminance luminaire for classrooms

TEACHING SURFACE ILLUMINANCE

Having established the issues surrounding the lighting of classroom spaces, studies showed that standard office luminaires did not perform well in this environment. A luminaire that could effectively light not only the horizontal working plane but also the vertical teaching surfaces and inject a feeling of space into the classroom was required. In a standard classroom lighting layout, 9 luminaires would be used, 8 of which would be adjacent to the wall surfaces or windows.

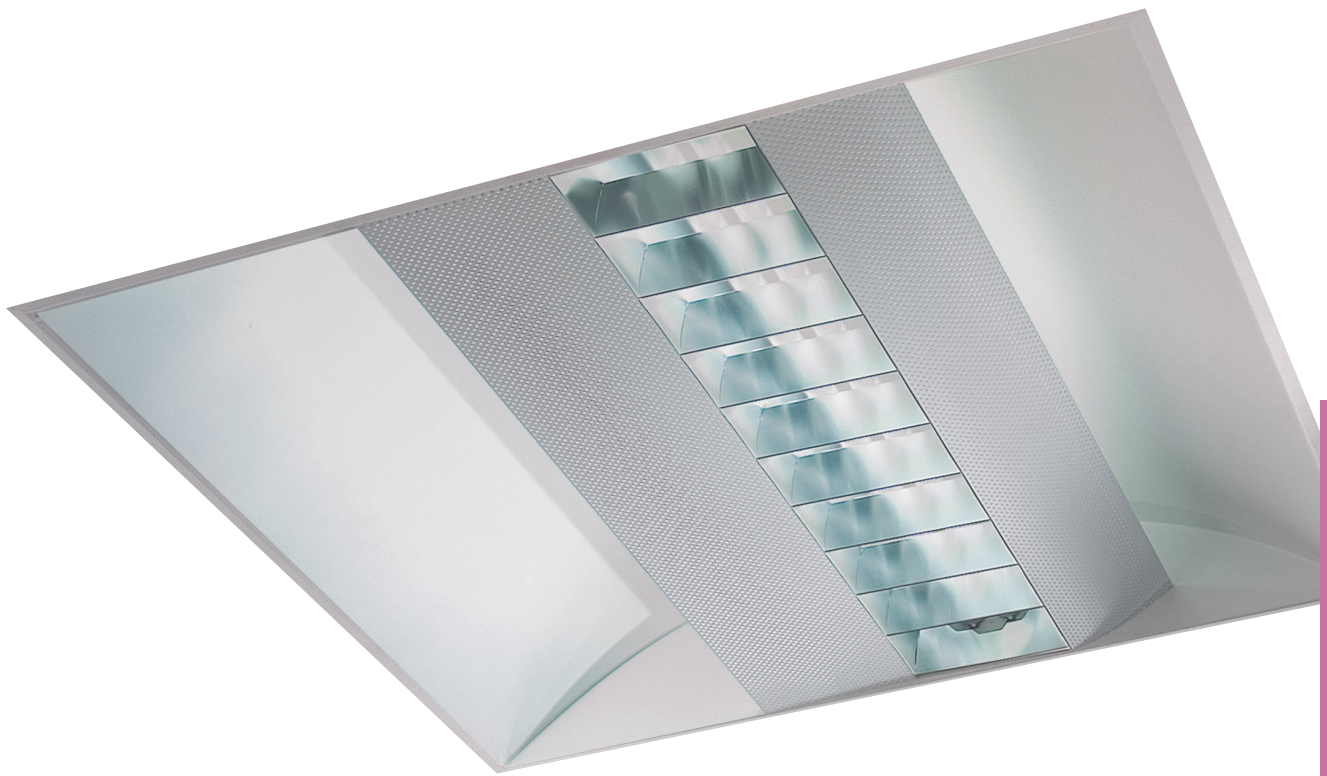
Whitecroft developed Cascade TSI (Teaching Surface Illuminance) specifically to address the problem of lighting the teaching surfaces of a classroom without the need for supplementary wall washers. Cascade TSI combines high optical performance with innovative design and not only delivers the best lit environment but also reduces energy consumption and installation costs. Cascade TSI used in conjunction with a standard Cascade luminaire provides the best possible recessed lighting solution for the classroom.



Cascade TSI has an asymmetric distribution in one quadrant to maximise wall illuminance, whilst the other 3 quadrants control glare and direct light onto the horizontal working plane.



A classroom lit with Cascade TSI luminaires appears brighter and more natural, with significantly increased wall illumination



SPECIFICATION

- Lamp options:
2 x 40W TC-L
4 x 14W T5
- Designed to rest above 600mm x 600mm exposed T (15mm and 25mm) ceilings
- Asymmetrical light output with one half of the luminaire providing ambient direct/indirect lighting and the other half providing wall illumination
- MIRO 5 semi-specular louvre on ambient half with perforated wings. On the wall wash side the lamp is covered by a flat perforated foil
- Fully flanged, rolled body with tightly jointed end plates finished white RAL9010
- High frequency or DSI digital dimming gear
- Can be supplied with a T connector for easy installation using Command Classroom Pack
- Available with 3 hour integral emergency or Easytest self test emergency. COMET addressable emergency test system available (contained in a remote gear box)
- Supplied without lamps

THE CASCADE TSI SOLUTION

In a standard classroom configuration 9 luminaires can be used to effectively light the space. By using Cascade TSI illumination of the teaching surfaces can be achieved without compromising the quality of light on the horizontal plane. This tried and tested solution is fast and easy to install giving both a low

installed and life cycle cost as supplementary lighting is not required.

The addition of plug and play controls can further reduce both installation time and life cycle costs, whilst bringing greater flexibility to the space.

CLASSROOM COMPARATIVE LIGHTING LEVELS

	TYPICAL 3x14W T5	CASCADE TSI 4x14W T5
Average Horizontal Illuminance	327 lux	341 lux
Average Side Wall Illuminance	27%	59%
Average End Wall Illuminance	30%	48%

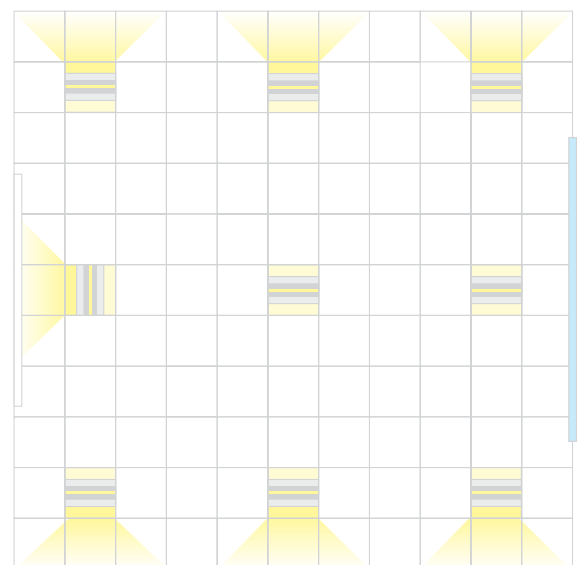
Cascade TSI puts almost twice as much light onto the walls of a classroom with a superior degree of uniformity than that of a typical symmetrical distribution luminaire.



Typical 3x14W T5

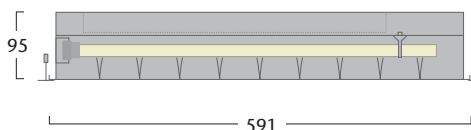
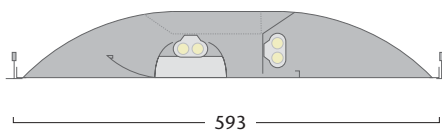


Cascade TSI 4x14W T5



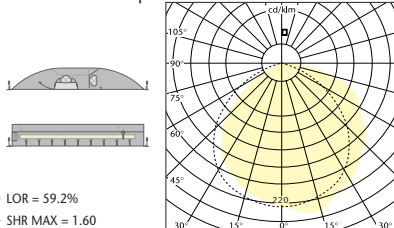
Cascade TSI used in conjunction with standard Cascade in a 9 luminaire typical classroom arrangement.

DIMENSIONS



PHOTOMETRY

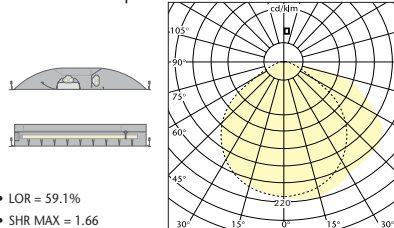
CASCADE TSI 2 x 40W TC-L Lamp



- LOR = 59.2%
- SHR MAX = 1.60

UTILISATION FACTORS UF(F)		SHR NOM 1.50										
Room Reflectance	Room Index	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00		
C	W	F										
0.70	0.50	0.20	0.38	0.42	0.47	0.50	0.54	0.56	0.58	0.61	0.62	
0.50	0.30	0.20	0.33	0.38	0.42	0.45	0.49	0.52	0.54	0.56	0.58	
0.00	0.00	0.00	0.29	0.33	0.37	0.40	0.44	0.46	0.48	0.51	0.52	

CASCADE TSI 4 x 14W T5 Lamp

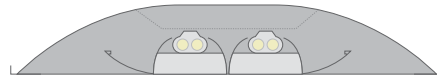
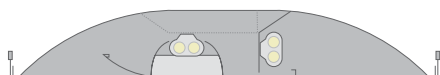


- LOR = 59.1%
- SHR MAX = 1.66

UTILISATION FACTORS UF(F)		SHR NOM 1.50										
Room Reflectance	Room Index	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00		
C	W	F										
0.70	0.50	0.20	0.37	0.42	0.46	0.49	0.53	0.56	0.58	0.60	0.62	
0.50	0.30	0.20	0.32	0.37	0.41	0.44	0.48	0.51	0.53	0.56	0.58	
0.00	0.00	0.00	0.27	0.32	0.36	0.39	0.43	0.46	0.48	0.50	0.52	

LAMP PERFORMANCE MATRIX

WATTAGE	IL@25°C	LAMP LIFE
1 x 14W T5	1200	20,000
1 X 40W TC-L	3500	10,000



ORDER CODES - CASCADE TSI

TEACHING SURFACE ILLUMINANCE LUMINAIRE FOR CLASSROOMS

SUPPLIED LESS LAMP	HIGH FREQUENCY	DSI DIGITAL DIMMING
4 x 14W T5	CTSH414	CTSD414
2 x 40W TC-L	CTSH240	CTSD240

EMERGENCY Add suffix to order codes above

EMIN 3 hour integral emergency, i.e. CTSH414**EMIN**

EASYTEST OPTION Add suffix to luminaire order codes above

/ET Easytest self test emergency i.e. CTSH414**/ET**

T CONNECTOR OPTION (GST18/6) for use with Command Classroom Pack.
Add suffix to order codes above

V00TMD	HF non-emergency, i.e.	CTSH414 V00TMD
V10TND	HF emergency, i.e.	CTSH414 V10TND
V00TPD	DSI non-emergency, i.e.	CTSH414 V00TPD
V10TRD	DSI emergency, i.e.	CTSH414 V10TRD

To specify state:

Recessed direct/indirect fluorescent module for classroom lighting. Rolled steel body finished white, with MIRO 5 louvre and perforated side panels. Asymmetrical light distribution with half of the luminaire providing 'Teaching Surface Illumination' - as per Whitecroft CASCADE TSI

ORDER CODES - CASCADE

DIRECT/INDIRECT LUMINAIRE INSTALLED IN THE CENTRE OF THE CLASSROOM

SUPPLIED LESS LAMP	HIGH FREQUENCY	DSI DIGITAL DIMMING
4 x 14W T5	CSDWH414	CSDWD414
2 x 40W TC-L	CSDWH240	CSDWD240

EMERGENCY Add suffix to order codes above

EMIN 3 hour integral emergency, i.e. CSDWH414**EMIN**

EASYTEST OPTION Add suffix to luminaire order codes above

/ET Easytest self test emergency i.e. CSDWH414**/ET**

T CONNECTOR OPTION (GST18/6) for use with Command Classroom Pack.
Add suffix to order codes above

V00TMD	HF non-emergency, i.e.	CSDWH414 V00TMD
V10TND	HF emergency, i.e.	CSDWH414 V10TND
V00TPD	DSI non-emergency, i.e.	CSDWD414 V00TPD
V10TRD	DSI emergency, i.e.	CSDWD414 V10TRD

See Catalogue page 127-130 for full details or use QuickLink CSD.



Whitecroft Lighting Ltd
Burlington Street, Ashton-under-Lyne
Lancashire OL7 0AX United Kingdom

QuickLink

CTSI

Go

Tel: +44 (0)870 5 087 087 Fax: +44 (0)870 5 084 210
email@whitecroftlight.com www.whitecroftlighting.com